

What is claimed is as follows:

1. A device for mixing paint or other liquids comprising:
a plurality of aligned vanes, each vane having an inner edge and an outer edge,
the vanes being arranged wherein the outer edges of the vanes define a frusto-conical surface.
2. The mixing device according to claim 1, wherein the frusto-conical
surface has a central axis, and wherein the inner edges of the vanes are aligned generally parallel
with or angled relative to the central axis, and the outer edges of the vanes are tapered outward to
form the frusto-conical surface.
3. The mixing device according to claim 1, wherein the frusto-conical
surface has a central axis, wherein the inner and outer edges of the vanes are aligned generally
parallel with each other, and wherein the vanes are tilted at an angle relative to the central axis to
form the frusto-conical surface.
4. The mixing device according to claim 1, further comprising:
an upper rim and a lower rim having a common central axis, the upper rim
having a diameter different from the diameter of the lower rim, the vanes extending lengthwise
between the upper rim and the lower rim.
5. The mixing device according to claim 4, wherein the upper rim and the
lower rim have a common central axis, and wherein the inner and outer edges of the vanes are
aligned generally parallel with each other.
6. The mixing device according to claim 1, wherein the frusto-conical
surface has a central axis, the mixing device further comprising:
a shaft having a proximate end and a distal end, the shaft being aligned along the
central axis, the proximate end of the shaft being connected to at least some of the vanes for

transmitting a rotating force on shaft to the plurality of vanes, the distal end of the shaft being adapted to be attached to a rotating drive means.

7. The mixing device according to claim 6, further comprising:

a plurality of turbines extending between the vanes and the shaft, each turbine having a first end attached to the shaft in fixed relation thereto for transmitting a rotating force on the shaft to the turbine, and a second end attached to the vanes in fixed relation for transmitting a rotating force on the turbine to the vanes.

8. The mixing device according to claim 7 wherein: the vanes define a top opening and a bottom opening; the turbines extend lengthwise between the shaft and the vanes; and widthwise, the turbines are aligned parallel with the central axis extending radially outward therefrom, whereby the turbines do not inhibit entry of liquids through the top and bottom openings.

9. The mixing device according to claim 1, wherein each vane is curved.

10. The mixing device according to claim 4, further comprising a plurality of feet extending downward from the lower rim.

11. The mixing device according to claim 1, wherein a first group of the plurality of vanes has a first length, a second group of the plurality of vanes has a second length longer than the first length, a bottom edge of the second group of vanes extending below a bottom edge of the first group of vanes for defining feet extending downwardly from the bottom edge of the first group of vanes, the vanes being arranged in a regular pattern alternating between vanes from the first group and vanes from the second group.

12. The mixing device according to claim 10, wherein each of the feet is curved and has a convex side and a concave side.

13. The mixing device according to claim 10, wherein the feet are orientated generally parallel.

14. A device for mixing paint or other liquids comprising:
an upper rim and a lower rim having a common central axis, the upper rim having a diameter different from the diameter of the lower rim; and
a plurality of aligned vanes, each vane having an inner edge and an outer edge, the vanes extending lengthwise between the upper rim and the lower rim.

15. The mixing device according to claim 14 wherein the vanes are shaped wherein the outer edges of the vanes defining a frusto-conical surface.

16. The mixing device according to claim 14 wherein the vanes are shaped wherein the inner edges of the vanes defining a frusto-conical surface.

17. The mixing device according to claim 15, wherein the frusto-conical surface has a central axis, and wherein the inner edges of the vanes are aligned generally parallel with or angled relative to the central axis, and the outer edges of the vanes are tapered outward to form the frusto-conical surface.

18. The mixing device according to claim 15, wherein the frusto-conical surface has a central axis, wherein the inner and outer edges of the vanes are aligned generally parallel with each other, and wherein the vanes are tilted at an angle relative to the central axis to form the frusto-conical surface.

19. The mixing device according to claim 16, wherein the frusto-conical surface has a central axis, wherein the inner and outer edges of the vanes are aligned generally parallel with each other, and wherein the vanes are tilted at an angle relative to the central axis to form the frusto-conical surface.

20. The mixing device according to claim 16, wherein the frusto-conical surface has a central axis, and wherein the outer edges of the vanes are aligned generally parallel with or angled relative to the central axis, and the inner edges of the vanes are tapered to form the frusto-conical surface.

21. The mixing device according to claim 14, wherein the frusto-conical surface has a central axis, the mixing device further comprising:

a shaft having a proximate end and a distal end, the shaft being aligned along the central axis, the distal end of the shaft being adapted to be attached to a rotating drive means;

a plurality of turbines extending between the vanes and the shaft, each turbine having a first end attached to the proximate end of the shaft in fixed relation thereto for transmitting a rotating force on the shaft to the turbine, and a second end attached to the vanes or the upper rim or lower rim in fixed relation for transmitting a rotating force on the turbine to the vanes.

22. The mixing device according to claim 21 wherein: the vanes define a top opening and a bottom opening; the turbines extend lengthwise between the shaft and the vanes; and widthwise, the turbines are aligned generally parallel with the central axis extending radially outward therefrom, whereby the turbines do not inhibit entry of liquids through the top and bottom openings.

23. The mixing device according to claim 14, further comprising a plurality of feet extending downward from the lower rim.

24. The mixing device according to claim 23, wherein each of the feet is curved and has a convex side and a concave side.

25. A device for mixing paint or other liquids comprising:

a plurality of aligned vanes forming a circular or frusto-conical shape having a central axis, a top opening and a bottom opening;

a shaft attachment being aligned along the central axis, the shaft attachment being adapted to receive torque from a shaft; and

a plurality of turbines aligned lengthwise between the vanes and the shaft attachment, each turbine having a first end attached to the shaft attachment in fixed relation thereto for transmitting a rotating force on a shaft to the turbine, and a second end attached to the vanes in fixed relation for transmitting a rotating force on the turbine to the vanes, the turbines being adapted to avoid inhibiting passage of liquids from the top to the bottom opening.

26. The mixing device according to claim 25, wherein the turbines are aligned widthwise generally parallel with the central axis.

27. The mixing device according to claim 25, wherein the turbines are curved lengthwise.

28. The mixing device according to claim 25, wherein the turbines are curved widthwise.

29. A device for mixing paint or other liquids comprising:

a plurality of aligned vanes, each vane having an inner edge and an outer edge, the vanes being arranged wherein the inner edges of the vanes defining a frusto-conical surface.

30. The mixing device according to claim 29, wherein the frusto-conical surface has a central axis, and wherein the outer edges of the vanes are aligned generally parallel with or angled relative to the central axis, and the inner edges of the vanes are tapered to form the frusto-conical surface.

31. The mixing device according to claim 29, wherein the frusto-conical surface has a central axis, wherein the inner and outer edges of the vanes are aligned with each other, and wherein the vanes are tilted at an angle relative to the central axis to form the frusto-conical surface.

32. The mixing device according to claim 29, further comprising:
an upper rim and a lower rim having a common central axis, the upper rim having a diameter different from the diameter of the lower rim, the vanes extending lengthwise between the upper rim and the lower rim.

33. The mixing device according to claim 32, wherein the upper rim and the lower rim have a common central axis, and wherein the inner and outer edges of the vanes are aligned with each other.

34. The mixing device according to claim 29, wherein the frusto-conical surface has a central axis, the mixing device further comprising:
a shaft having a proximate end and a distal end, the shaft being aligned along the central axis, the proximate end of the shaft being connected to at least some of the vanes for transmitting a rotating force on shaft to the plurality of vanes, the distal end of the shaft being adapted to be attached to a rotating drive means.

35. The mixing device according to claim 29, further comprising:
a plurality of turbines extending between the vanes and the shaft, each turbine having a first end attached to the shaft in fixed relation thereto for transmitting a rotating force on the shaft to the turbine, and a second end attached to the vanes in fixed relation for transmitting a rotating force on the turbine to the vanes.

36. The mixing device according to claim 35 wherein: the vanes define a top opening and a bottom opening; the turbines extend lengthwise between the shaft and the vanes; and widthwise, the turbines are aligned generally parallel with the central axis extending radially outward therefrom, whereby the turbines do not inhibit entry of liquids through the top and bottom openings.

37. The mixing device according to claim 29, wherein each vane is curved.

38. The mixing device according to claim 32, further comprising a plurality of feet extending downward from the lower rim.

39. The mixing device according to claim 29, wherein a first group of the plurality of vanes has a first length, a second group of the plurality of vanes has a second length longer than the first length, a bottom edge of the second group of vanes extending below a bottom edge of the first group of vanes for defining feet extending downwardly from the bottom edge of the first group of vanes, the vanes being arranged in a regular pattern alternating between vanes from the first group and vanes from the second group.

40. The mixing device according to claim 39, wherein each of the feet is curved and has a convex side and a concave side.

41. The mixing device according to claim to 39, wherein the feet are orientated generally parallel.

42. A device for mixing paint or other liquids comprising:

a plurality of aligned vanes, each vane having a top and a bottom end, the vanes having a regular spacing; and

a plurality of feet extending below a bottom edge of the vanes, the plurality of feet having a regular spacing greater than the spacing of the vanes.

43. The mixing device according to claim 42, further comprising:

an upper rim and a lower rim, the vanes extending lengthwise between the upper rim and the lower rim, the plurality of feet extending downward from the lower rim.

44. The mixing device according to claim 42, wherein a first group of the plurality of vanes has a first length, a second group of the plurality of vanes has a second length longer than the first length, a bottom edge of the second group of vanes extending below a bottom edge of the first group of vanes for defining feet extending downwardly from the bottom edge of the first group of vanes, the vanes being arranged in a regular pattern alternating between vanes from the first group and vanes from the second group.

45. The mixing device according to claim 42, wherein each of the feet is curved.

46. The mixing device according to claim 42, wherein the feet are orientated in the same direction as the vanes.

47. The mixing device according to claim 42, wherein the feet are orientated in the opposite direction as the vanes.

48. A device for mixing paint or other liquids comprising:

a shaft defining a central axis; and

a plurality of vanes arranged around the central axis, each vane having an outer edge, the outer edges of the vanes being aligned non-parallel to the central axis.

49. A device for mixing paint or other liquids comprising:

a shaft defining a central axis; and

a plurality of vanes arranged around the central axis, each vane having an inner edge, the inner edges of the vanes being aligned non-parallel to the central axis.